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(54) **SYSTEMS AND METHODS FOR PROVIDING BACK-UP HYDRAULIC POWER FOR AIRCRAFT, INCLUDING TANKER AIRCRAFT**

(75) Inventors: **Daniel R. Near**, Rose Hill, KS (US);
Mark S. Petty, Wichita, KS (US)

(73) Assignee: **The Boeing Company**, Chicago, IL (US)

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(52) **U.S. Cl.** **244/78.1; 244/135 A**

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See application file for complete search history.

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Primary Examiner—Tien Dinh

(74) *Attorney, Agent, or Firm*—Perkins Coie LLP

(57)

ABSTRACT

Systems and methods for providing back-up hydraulic power for aircraft are disclosed. A system in accordance with one aspect of the invention includes a hydraulic supply line, a hydraulic return line, and a hydraulic actuator coupled between the supply line and the return line. The system can further include a fluid energy storage device coupled in parallel with the hydraulic actuator between the supply line and the return line, and a first valve (e.g., check valve) coupled in series between the supply line and the fluid energy storage device. A second control valve can control the flow of fluid from the fluid energy storage device to the actuator. In particular embodiments, the fluid energy storage can be coupled to an actuator that deploys and retracts an aerial refueling device.

21 Claims, 4 Drawing Sheets

